

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1-4. (CANCELLED)

5. (PREVIOUSLY PRESENTED) A method of measuring image alignment error for image formation in an ink-jet image forming apparatus having a carriage, the method comprising:

printing two test marks separated from each other by a designated error distance on a printing medium on which images are printed;

sensing the two test marks;

measuring instants of time when the two test marks are sensed according to a movement of the carriage; and

detecting an actual error distance of the two test marks using the measured instants of time and a moving speed of the carriage,

wherein the detecting of the actual error distance comprises:

integrating a variable moving speed of the carriage between the measured instants of time of the two test marks; and

discretely separating the integrated value to generate the actual error distance.

6-10. (CANCELLED)

11. (PREVIOUSLY PRESENTED) An apparatus for measuring image alignment error for image formation in an image forming apparatus having a carriage, the apparatus comprising:

a test mark print-directing unit which directs the carriage to print two test marks separated from each other by a designated error distance on a printing medium on which images are printed;

a test mark sensing unit which senses the two test marks and outputs a sensed result of the two test marks:

a reference clock generating unit which generates a reference clock and outputs the generated reference clock;

a sensed instant of time measuring unit which compares the sensed result of the two test marks with the generated reference clock to measure instants of time when the two test marks are sensed according to a movement of the carriage, and outputs the measured instants of time; and

an error distance detecting unit which detects an actual error distance of the two test marks using the measured instants of time and a moving speed of the carriage, and outputs the detected actual error distance,

wherein the error distance detecting unit integrates the variable moving speed of the carriage between the measured instants of time of the two test marks to generate an integrated value, discretizes the integrated value, and detects the actual error distance.

12-17. (CANCELLED)

18. (PREVIOUSLY PRESENTED) An apparatus for measuring an image alignment error for image formation in an image forming apparatus having a carriage, the apparatus comprising:

a test mark print-directing unit which directs the carriage to print first and second test marks on a printing medium according to a designated error distance;

a test mark sensing unit which senses the first and second test marks and outputs first and second sensed results of the first and second test marks:

a sensed instant of time measuring unit which measures instants of time when the first and second test marks are sensed, according to the first and second sensed results, and outputs the measured instants of time; and

an error distance detecting unit which detects an actual error distance of the first and second test marks using the measured instants of time to compensate for the image alignment error according to the actual error distance of the first and second test marks,

wherein the moving speed of the carriage is variable during printing the first and second test marks, and the error distance detecting unit calculates values representing the variable moving speed of the carriage between the measured instants of time and generates the actual error distance according to the values.

19. (PREVIOUSLY PRESENTED) An apparatus for measuring an image alignment

error for image formation in an image forming apparatus having a carriage, the apparatus comprising:

a test mark print-directing unit which directs the carriage to print first and second test marks on a printing medium according to a designated error distance;

a test mark sensing unit which senses the first and second test marks and outputs first and second sensed results of the first and second test marks:

a sensed instant of time measuring unit which measures instants of time when the first and second test marks are sensed, according to the first and second sensed results, and outputs the measured instants of time; and

an error distance detecting unit which detects an actual error distance of the first and second test marks using the measured instants of time to compensate for the image alignment error according to the actual error distance of the first and second test marks,

wherein the error distance detecting unit detects whether the moving speed of the carriage is constant or variable, using a reference clock signal and a movement of the carriage to generate the actual error distance using one of first and second calculation methods selected in response to determining that the moving speed of the carriage is constant or variable.

20. (PREVIOUSLY PRESENTED) The apparatus of claim 19, wherein the carriage moves in a first direction, the printing medium moves in a second direction, and the first and second test marks are printed in one of the first and second directions.

21. (PREVIOUSLY PRESENTED) The apparatus of claim 19, wherein the carriage moves with respect to the printing medium to print an image in another printing direction according to a difference between the actual error distance and the designated error distance.

22-23 (CANCELLED)